

NCPA Downlink

The Official Journal of the Northern California Packet Association
Serving Amateur Radio Digital Communication in Northern California

Spring, 1997

Issue number 17

Price: \$3.50

In This Issue

Keyboard To Keyboard Activities	1
President's Message	2
NCPA Has Moved!	2
Changes in Spread Spectrum	3
AMSAT News Service Bulletin	4
The Future of Amateur Packet Radio	5
NCPA General Meeting May 10	5
How To Stay Connected to your DX PacketCluster Node	6
The ARRL Letter	8
FCC Delays New RF-Exposure Rules	9
Where To Find DXPSN	11
Northern California Packet Band Plan	12
Where to Find a BBS	13
NCPA Constitution	14
Change to the Bylaws	16
ARRL Opposes Little LEOs	16
NCPA Board Meeting	17
PSNC Meeting May 10	18
PSNC Emergency meeting	19

Keyboard To Keyboard Activities

Howard Krawetz N6HM

Many people have asked me how one can reach out and talk to distant people on packet. I was also asked to develop a node map. As I sat down to do this I realized what an overwhelming task this could develop into. This is because nodes come and go quite often. Also, depending upon where you are located you may or may not hear a particular node that you thought you should hear.

To differentiate between a node and a standard digi/mailedrop, think of your Terminal Node Controller (TNC) as also being a digital repeater or digipeater and also maybe a mailedrop. While your system is on the air and powered up, others may repeat through your system to reach hams that are too distant for them to reach directly. Your friends can also leave mail for you in your mail box. Some TNC's also allow third party mail. This means a friend can leave a message in your mail box that was not intended specifically for you. These types of digi's may be placed on mountain tops or

in the flat lands in some one's home. These digi's require a handshake between the receiver and the initiator to be passed through for each packet sent. If there is an error anywhere in the data link and the receiver rejects the packet, it is required that the initiating station re-send the rejected packet and all packets after it. These resent messages must pass through each digi in the chain.

Nodes on the other hand will accept and acknowledge the packets they receive and will temporarily hold the packet in their memory as they send the packet to the next directed station. If there is an error in one of the packets being sent, the node will just re-send it (this does not require the originator to re-send) and keep the packets flowing. As you can see, the node cuts down on the traffic that is being sent and does not require as many hand shakes between the originator and the addressee.

So I took a simpler approach to developing a node map. For the new operator here is a way for you to develop your own node map that will work from your location. Just turn on your TNC and radio and let them sit on one of the keyboard to keyboard frequencies (144.910 MHz, 145.010 MHz or 145.030 MHz on two meters as an example) for about 45 minutes. Typically nodes send out a beacon every one half hour (1.5). After your system has been monitoring the frequency for this time, type "MH", this will give you a list or all the packet systems that have beacons during your monitoring period.

Example 1

```
17-Feb-97 10:27:00 N6HM-3*>CQ:
de N6HM-3 Crystal Peak Digi
17-Feb-97 10:31:05 KD6ZXT*>BEACON:
[MAIL-BOX]=KD6ZXT-1 [WILD-NODE]=LOSALT [QTH]=LOS ALTOS, CA..
17-Feb-97 10:52:09 N6YB-1*>SNYEOC:
de Sunnyvale EOC
17-Feb-97 10:57:02 N6HM-3*>CQ:
de N6HM-3 Crystal Peak Digi
17-Feb-97 11:22:09 N6YB-1*>SNYEOC:
de Sunnyvale EOC
17-Feb-97 11:27:04 N6HM-3*>CQ:
de N6HM-3 Crystal Peak Digi
17-Feb-97 11:31:05 KD6ZXT*>BEACON:
[MAIL-BOX]=KD6ZXT-1 [WILD-NODE]=LOSALT [QTH]=LOS ALTOS, CA..
```

Continued on page 4

President's Message

Gary Mitchell WB6YRU

By now, many of you have probably heard about the new digital listing by TAPR (Tucson Amateur Packet Radio... probably the biggest, if not best known packet organization). The ARRL Repeater Directory will stop carrying packet information. TAPR has picked up the slack with a web page containing nothing but packet listings. As of this writing, it's still a work-in-progress, but looks very promising. The sub-group doing this is called NADSD, (North American Digital Systems Directory). Individual packet groups up-load their information into their own accounts with TAPR. Software then scans those files and constructs the listing. Each group may up-load their latest data whenever they want. The TAPR system checks for modified or new files fairly often. The NCPA is participating. Check it out at <http://www.tapr.org/directory/>.

There is some talk of TAPR coming out with a CD version, so keep an eye out for that too.

Thanks to TAPR for taking on this task!

Pacificon

Did you go to the last Pacificon? The NCPA was there again. Thanks to all who helped! We had the *Packet Questions & Answers* session again and Carol Byers gave a presentation on *Packet Satellites*. Unfortunately, we weren't able to get a speaker for the *Introduction to Packet* session, which we have had in the past.

If anyone is interested in giving a packet talk at Pacificon '97, has something for the NCPA table, or just would like to help out in general, please contact me: e-mail wb6yru@arasmith.com or packet: WB6YRU @ N0ARY.#NCA.CA.USA.NOAM

New Packet Designators

Have you seen the new packet designator for the Northern California region? The plan is to follow the postal abbreviations for the states and precede the code with compass headings or area designators. This change was made to go along with what seems to be a national trend toward this standard.

The Northern California BBS network has gone from #NOCAL to #NCA. Likewise, CENCA has become CCA and Southern California is now SCA.

The distribution codes for bulletins has also changed in a similar manner. To send a bulletin for Northern California, the flood designator has gone from ALLCAN to NCA, (likewise CCA in central CA and SCA in So. CA). Below are some examples.

The new codes are in effect now. The old codes will be good at least through 1997 to give folks time to get up to speed.

Individual LAN flood designators may or may not change, contact your local sysop's for more information.

Continued on page 3

The NCPA Downlink

Editor:

Gary Mitchell, WB6YRU
BBS: WB6YRU@N0ARY.#NCA
Internet: wb6yru@arasmith.com

Layout/Typesetting:

Eric Williams, WD6CMU
BBS: WD6CMU@WD6CMU.#NCA
Internet: wd6cmu@netcom.com

Printing/Mailing:

Howard Krawetz N6HM
BBS: N6HM@N0ARY.#NCA
Internet: 73221.717@compuserve.com

The NCPA Downlink is published quarterly by the Northern California Packet Association, PO Box 61716, Sunnyvale, CA 94088-1761, for the entertainment and education of amateur Radio operators using digital modes, and those with an interest in them. A one-year membership in the NCPA, including a subscription to the NCPA Downlink, is \$10.00 in the U.S. and its possessions.

All original material not attributed to another source is Copyright © 1996 by NCPA. Excerpts may be drawn from this publication without prior permission provided the original contributor is credited and this publication ("The NCPA Downlink") is cited as the source.

Back issues of The NCPA Downlink, as well as other information, are available on the Web at <http://www.arasmith.com/~ncpa>

FCC Proposes Changes in Spread Spectrum Regulations

From ARRL Headquarters, Newington CT, March 5, 1997

Responding to a petition for Rulemaking from the ARRL, the FCC has proposed in WT Docket 97-12 to adopt changes in its Amateur Service rules governing spread spectrum. In spread spectrum the energy of the transmitted signal is distributed among several synchronized frequencies within a band and reassembled at the receiving end. This reduces power density and duration of a transmission on a particular frequency and lets spread spectrum almost invisibly share the same spectrum with users of other, narrow band modes. Spread spectrum also provides for improved communication under poor signal-to-noise conditions and in selective fading and multi-path environments, and the ability to accommodate more communication channels operating simultaneously in the same spectrum.

The League's December 1995 petition asked the FCC to relax its rules to give Amateur Radio more opportunities

to contribute to the development of spread spectrum techniques. Specifically, the League sought to have the FCC relax restrictions on spreading sequences and asked for greater flexibility in spreading modulation. In response, the FCC now has proposed to drop rules restricting amateur stations to transmitting only frequency-hopping and direct-sequence spreading techniques. As requested by the League, the FCC also has proposed to require automatic power control for spread spectrum transmitters, to ensure use of the minimum power level needed to carry out communication.

The FCC also went along with the League's request to permit brief test transmissions using spread spectrum and to allow international spread spectrum communications between amateurs in the US and those in countries that allow hams to use spread spectrum. The current rules allow only domestic communication.

The use of spread spectrum techniques was first approved for Amateur Radio in 1985 for bands above 225 MHz

and at power levels up to 100 watts, and there has been some experimental amateur operation since then. The FCC also has authorized Special Temporary Authority (STA) in some instances to allow broader SS experimentation. Since spread spectrum was introduced in the Amateur Radio service, commercial spread spectrum applications have been developed, including personal communication services, remote meter reading and position locating. But, the League had argued that rules limitations held back further spread spectrum experimentation. No changes are proposed in the frequency bands where spread spectrum is permitted.

The FCC said the rule amendments would "increase spectrum efficiency and allow amateur operators to contribute to technological advances." Comments on the NPRM in WT Docket 97-12 are due May 5, with reply comments due June 5.

EOF

President's Message

Continued from page 2

Editor & Frequency Coordinator

As you know, we've been needing an editor. Your's truly has been trying to fill the void. Our V.P. and keeper of the band plan, Eric WD6CMU has offered to become Editor if someone else takes over as Frequency Coordinator. I've offered to take on that duty. If anyone is interested in either position, please let me know.

E-meetings

The board has decided to allow themselves to meet electronically, using an internet remailer. I call them "e-meetings."

Sometimes it's difficult to find a day and time when everyone can attend meetings. Also, since the NCPA covers considerable territory, most directors have to drive long distances to attend meetings. E-meetings avoid all that. E-meetings will not completely replace face-to-face meetings, especially not the annual general meeting, but it will allow your board to work on NCPA business much more efficiently.

In order to maintain the openness of face-to-face meetings, the remailer will be open to all interested persons. The address is board@ncpa.ampr.org. The software is Majordomo (the same robot

used on other remailers). Anyone may subscribe to this remailer by sending e-mail to majordomo@ncpa.ampr.org with "subscribe board" in the message body. (The subject doesn't matter.) Keep an eye out for BBS packet bulletins about this, too.

A BIG thanks goes to Bob KO6RI (of TCP/IP persuasion) for setting it up and hosting the site!

Bylaw changes

The e-meeting idea (above) requires an addition to the NCPA bylaws. Also, the board suggests altering the wording in another part of the bylaws to make the NCPA officially more congenial to packet special interest groups. Please see the details elsewhere in this newsletter.

Gary, WB6YRU

EOF

New BBS routing designator examples

SALE @ NCA	Northern California, (was ALLCAN)
INFO @ CA	California state-wide, (was ALLCA)
WANT @ WUSA	West half of the USA, (was ALLUSW)
HELP @ USA	The whole nation, (was ALLUS)

Keyboard To Keyboard Activities

Continued from page 1

You can usually spot a node verses a real live ham that was operating by the call sign. Nodes usually have a distinctive non-standard amateur call sign. For instance, Example 1 shows a list of call signs that I heard at my home in Sunnysvale. Note how after one half (1.5) hour the nodes started to repeat themselves. Also note how descriptive they are. KD6ZXT tells you it has a mail box as well as being a node. N6HM-3 tells you it is only a digi. If you connect to it you find that it also has a mail box. N6YB-1

turns out to be an Emergency Operating Center digi.

After you have selected a node connect to it. When you have connected, type HELP. The node will usually tell you where it is located and give you a bunch of other commands. By using the other commands the node will tell you who else is also connected to it and what other nodes it has recently heard. You can then without disconnecting from the node tell it to connect to another node. You can continue this "node hopping" all the way across the country if you desire.

After you are connected to a node and have typed the "HELP" command, you may get a display of commands and their definitions as shown in Example 2. Since this node also has a maildrop, it has extra commands to allow you to leave a message, but it will also act as a node and repeat messages. If you type the "J" command it will tell you the stations and nodes it has heard.

If you wish to reach an individual or friend, when you have reached a node that covers the area of your target interest, just tell the last node to connect to your target. If your friend is on the air or has an active mail drop, you can operate keyboard to keyboard or just leave them a message. Be aware that each time you add a new node to your link, there will be an additional communications delays. I have personally linked up to seven (7) nodes and had up to a three (3) minute delay before receiving the message from my target station.

If you want to have some fun, try linking these nodes and you will then really find out how long three (3) minutes can be. Using high elevation nodes and linking no more than two or three nodes together can allow you to talk from Northern California to Southern California and the delays are not excessive.

So go ahead and make your own node map, its not hard and will be specific to your station.

If you have any thoughts, questions or comments, send them to me at: Packet N6HM@N0ARY, e-mail 73221.717@compuserve.com

73, Howard N6HM

EOF

Example 2

```
17-Feb-97 12:39:45 CONNECTED to KD6ZXT
Channel 0:
WELCOME TO VAL'S MAIL-BOX KD6ZXT-1 Operator not at the
keyboard, leave message

[KPC3-5.1-HM$]
75817 BYTES AVAILABLE
THERE ARE 16 MESSAGES NUMBERED 1-27
**WELCOME TO VAL'S MAIL-BOX/KD6ZXT-1** LOS ALTOS, CALIF **
MESSAGES?? ***

ENTER COMMAND: B,J,K,L,R,S, or Help H
B(ye) PBBS WILL DISCONNECT
J(heard) CALL SIGNS WITH DAYSTAMP
J S(hort) HEARD CALL SIGNS ONLY
J L(ong) CALL SIGNS WITH DAYSTAMP AND VIAS
L [x [y]] [;] LIST MESSAGES x THROUGH y YOU CAN READ
L call LIST MESSAGES FROM OR TO CALL
LB LIST BULLETINS
LC [cat] LIST CATEGORIES
LL n LIST LAST n MESSAGES
LM(ine) LIST UNREAD MESSAGES ADDRESSED TO YOU
LO [+|-] LISTING ORDER
LT LIST TRAFFIC
K(ill) n DELETE MESSAGE NUMBER n
KM(ine) DELETE ALL READ MESSAGES ADDRESSED TO YOU
R(ead) n DISPLAY MESSAGE NUMBER n
RH n DISPLAY MESSAGE n WITH HEADERS
RM(ine) READ ALL MESSAGES ADDRESSED TO YOU
S(end) call SEND MESSAGE TO call sign
S[B|P|T] call SEND BULLETIN, PRIVATE, or TRAFFIC
ENTER COMMAND: B,J,K,L,R,S, or Help >
```

AMSAT News Service Bulletin

from AMSAT HQ Silver Spring, MD
January 05, 1997

John Blaha, KC5TZQ, made an announcement that, as of January 1 1997, the MIR 2-meter voice and packet frequencies would change from 145.800 MHz uplink and 145.200 MHz downlink to 145.800 MHz downlink and 145.200 MHz uplink for groundstations John was switching between the two frequencies as he was trying to work stations and inform

anyone listening of the change to the frequencies used to uplink and downlink to MIR. Below are the frequencies a groundstation would use to communicate to the MIR space station.

FM voice ops:
uplink 145.200 MHz transmit
downlink 145.800 MHz receive

Packet ops:
uplink 145.200 MHz transmit
downlink 145.800 MHz receive

[Please note, their previous frequency assignment of 145.800 MHz uplink was done not very long ago. The reason why the NCPA is interested in this is because 145.800 is a boundary frequency around here with 145.79 being a BBS channel. They know this may be a problem in some areas and have received reports of interference. Perhaps that is why they made this change. —Editor]

EOF

The Future of Amateur Packet Radio: One Person's Perspective

From North East Digital Association (NEDA) Publications

Burt VE2BMQ

From time to time people speculate on the future of Amateur Packet Radio, where it is going, what it will look like and what has to be done to enable the future. I believe that Packet Radio in the future will be very different from the present.

Amateur packet radio started out as a experimenter's medium to play with the new digital radio techniques. A solution in search of a problem, it rapidly got taken over by the BBS system. (There are still places where packet radio = BBSs and not much more). In recent years, the main driving force to packet radio have been the "Infoholics". These are the people who search out ways of getting more and more (usually irrelevant) data, in increasingly more intensive forms like graphics, just as an alcoholic craves liquor. Often the goal of the infoholics was access to the "internet". Unfortunately (for them) the existing amateur packet network is unable to satisfy the data requirements of the infoholics and they on their part seem to be unwilling to finance the high cost of upgrading the network to their needs.

So what of the future. As I see it, the increasing opportunities of access to the public "information highway" at high speed and low cost will capture the infoholics. This is already happening in those localities which have cheap, easy access to "the net". Here in Canada, Toronto led the way with cheap internet

access. A network spokesman reported more than a year ago that their attempts to provide 9600 bps user ports have met with very little use. The ports are there but most of the people who had acquired 9600 bps equipment have never used it. It is so much easier and faster to use their 28.8K phone modems. So the infoholics have abandoned amateur packet radio as soon as a better, easier source of information has opened up. (Note: This is not a new revelation. Tadd, KA2DEW, expressed this opinion several years ago.).

(Last minute note: My Toronto network contact now reports that their 9600 bps user ports are slowly but steadily gaining users in recent months. He feels that this is due to new 2m 9600bps ports supplementing the earlier UHF ports as well as more suitable hardware being available. He notes also that the users are not the "infoholic" types noted above but are mostly tcp users looking to gateway to the network. Their network is now being forced to upgrade their 19.2K backbone links to accommodate the increased demand. So packet radio is not dead yet.)

I see the future of amateur packet radio as evolving toward a much more traditional Amateur Radio style. With the pressure from the infoholics relieved, packet radio will become:

- A medium to experiment with digital radio techniques by experimenters who are more interested in radio and

computer hardware than the computer software and information.

- A provider of the traditional amateur radio services of emergency communications and assistance with public events.
- A source of unique digital amateur radio services that are not practical on the public switched phone network. A good example would be the DXCluster service that requires long connection times but very little data transfer.
- The poor man's "internet" for hams in the boondocks where cheap telephone access to the internet has not yet reached. Here the BBS system will continue to provide their information until better sources evolve.

Will our present network grow, stabilize, shrink or disappear? It will all depend on the willingness of those who are left to provide the resources (money) and manpower to build and/or maintain our network. We will get what we are willing to pay/work for. As most network builders already know, it does not come free. The radio oriented people who have built most of the network in the past are getting tired and unless there are new recruits to assist them, our network may well shrink or become fragmented. You have the future of networking in your hands.

EOF

NCPA General Meeting May 10

The annual NCPA General meeting is scheduled for May 10, 1997, 1 PM (after the Foothill Flea Market). We have reserved the park building at Sunnyvale, Fair Oaks Park. This is located at 540 N. Fair Oaks Ave. Parking is near the corner of Wolfe and Maude. (There is a good sized parking lot just off of Wolfe near Maude.) Please watch for updates sent out via packet bulletins. Talk-in on the SCCARA repeater 146.385+. Contact me for more information: e-mail: wb6yru@arasmith.com or packet: wb6yru@n0ary.#nca.ca.usa.noam.

The board of directors will be elected at the general meeting and we'll vote on changes to the bylaws. As of yet, no speaker is scheduled — please let me know if you have any suggestions.

73, Gary WB6YRU

[Important Note: See announcement for PSNC meeting to immediately follow the NCPA General Meeting on Page 18.]

How To Stay Connected to your DX PacketCluster Node

PacketCluster Parameters from a User's perspective

Jay O'Brien, W6GO

Preface

The following paper is prepared for the WIMU (Wyoming, Idaho, Montana, Utah) convention, August 5, 1995, in Jackson, Wyoming.

I was asked by Wayne Mills, N7NG, to talk about what a PacketCluster user could do to better utilize a PacketCluster node (Wayne is a node SYSOP in addition to being a world-class D-Expedition operator).

QST bills my talk as "Advanced Packet". I hope the "advanced packet" people who run TCP/IP, JNOS, APRS or the like don't get upset when I explain that MY "advanced packet" is just "how to stay connected at 1200 baud to a PacketCluster node!"

What are my qualifications for presenting this paper? My PacketCluster node went on the air on April 20, 1988. I was a principal beta tester for several versions of PacketCluster and many of the PacketCluster features are there at my suggestion. My node now has five other nodes connected directly via backbone connects and as many as 4 nodes connected in addition on 10MHz. My node has direct user connects and user connects via two "X1J" network nodes. My node has as many as 40 user connects at one time during a contest. Assisted by others who are technically aware of AX.25 packet protocol, I have worked with many users to identify and correct user connect problems, and in all cases except one we have been successful in resolving the problems.

This paper is not a copyrighted work.

Subjects to be covered

- A node sends a DX spot to a user. What really happens?
- A node sends a DX spot to a LOT of users. What really happens?
- A TNC has a lot of PARMS. What are they, how do they keep you connected? note: RF problems are not covered here.

Anatomy of a DX Spot

When a PacketCluster node sends the following spot, what happens?

Example DXPSN spot

```
DX de W6GO: 14020.3 5A1A QSX 026 wants W6/7 0550Z
```

If there is only one user on a clear RF channel, the sequence is shown in Tables 1 and 2. Adding the spot and acknowledgement time gives us 1393.41ms total, or 1.4 seconds.

Conclusions

1. Information transmitted was 75 bytes, and it took 1.4 seconds.
2. The data transmission rate is 53.6 bytes per second, or 428.6 baud, not 1200 baud.

Assumptions

1. No delay imposed in sending acknowledgement to node.
2. No retries necessary due to QRM or signal fade.
3. 3% bit stuffing by AX.25 algorithms which prevent 6 consecutive one bits anywhere other than in the flags.

What's wrong with this example?

If a DX spot takes 1.4 seconds, then a user should be able to get 42 DX spots a minute, right?

Right, if there is ONLY ONE USER connected to the node, the user has a perfect connect, the user frequency has no other traffic, and the node and user are

adjusted to capitalize on this perfect situation.

The real world has LOTS of users on the frequency, perhaps some Network nodes relaying users to the node, and maybe other traffic like Cluster users from another node on the same frequency or non-cluster traffic. What happens then?

To reduce the average time for each DX spot, the node will key up and send the spot to 5 or more users, thus using the TXDELAY time only once for all of the spots. Then, the node will switch to receive and collect acknowledgements from users. When the frequency is clear the node will send the spot to another group of stations. Some of these stations will transmit on top of each other and will then resend their acks. It is a mess!

Think about it. If there are 20 stations connected and there are no collisions, when a DX spot goes out the node transmits about 20 seconds to send to everyone, and if everyone responds politely, it takes ten seconds to get all of

Table 1: Timing of a DX spot sent to a user

(Times shown are in milliseconds)

0.25	Transmit process time
250.0	Transmit turn on time (TXDELAY)
6.67	Flag byte (always 01111110 binary)
137.0	Call signs and SSIDs, average 20 chars (range is 14-70 characters)
6.67	Frame type byte (signifies this is an information frame)
6.67	Protocol Identifier byte (changes if between NetRoms)
515.0	DX spot. 72 characters plus two bell characters, one CR character
13.33	Frame check sequence (used for error checking)
6.67	Flag byte
15.0	Data receipt allowance (carrier hang on)
0.03	Propagation delay
0.25	Receiver process time
957.5	Total Node Transmission

the acknowledgements from the users. That implies it is possible to send two spots a minute. Actually, this IS possible! But only for short bursts.

How do we get around this problem? We tell our TNCs to be polite and passive, minimizing arguments between users of the frequency. We tell the TNC how to act using directives called "PARAMETERS", or PARMS. More on PARMS later. Right now, a bit more description of the problem.

Tom Wood, N6IXX, wrote the following discussion some years ago. I have edited it a bit to bring it up to date. It still applies and will help to explain.

This is a discussion about TNC parameters and what they mean to the typical PacketCluster user. This was written with the knowledge that most PacketCluster users are new to packet, and of the belief that this "parameter stuff" is too complicated for them. Trust me, it's not.....

If you will change a few of the parameters in your TNC, you will, without question see an improvement in your PacketCluster operation.

The PacketCluster node is an anomaly in packet radio. PacketCluster operates as a real time spotting network. What this amounts to is an RF Riot when a DX announcement goes out. The parameters in use in the "regular" packet world cause problems here.

Why?

Picture the following: 20 people are asking non-stop questions, and they are all asking them at the same time. Unfortunately, there is only 1 person to answer them. As a result, the 20 people asking the questions have to scream, yell, and repeat their questions again and again. In a situation like this there is not much information being exchanged ...

Now picture this: All of these people are in a very large room. Some of the 20 question asker's are so far away from the answer person that they cannot be heard. So they enlist the help of a "relay" person....they pass the question through the "relay" person who sends it on to the answer person. Now you have 20 people AND a few "relay" people asking questions ---- of one person (!!).

If everyone would simply slow down and wait their turn, things would go much more smoothly. Ask a question, get an answer. Ask a question, get an answer.

Where am I going with this ??

The scenario I have outlined above is almost exactly what happens on PacketCluster. Almost all of the TNC's manufactured today are programmed with the EXACT same parameters. Most people buy the TNC and put it on the air with no regard to parameter settings. The result is that these people are pounding each other in an attempt to communicate with a PacketCluster node.

Add an X1J or NET/ROM Node and you now have the "relays" mentioned above. All of these devices are competing for the "ear" of the PacketCluster Node.

With everyone's TNC set to behave in the same manner, there are collisions all over the place, throughput is reduced and everyone pays the price in "sluggish" operation.

By adjusting some key parameters in your TNC, you set yourself apart from the crowd. You transmit when they don't. The Node hears you after only 1 or 2 tries. When everyone adjusts their parameters, they are in effect taking turns at communicating with the Node. Information flows more smoothly. And things actually run at a faster clip.

It is particularly important to adjust your TNC parameters when a X1J or Net/Rom node is being used. Under these conditions, someone is transmitting almost all of the time. And, you don't hear many of the other users, compounding the problem.

If things don't work perfectly, try minor PARM changes. You may be conflicting with another user. If everyone uses the same PARMS, that's a problem in itself! Some "fiddling" with TNC settings may be in order. Change a little here, change a little there. You will notice a difference with each change. Yes, you might even have to dig out the "book".

N6IXX spent untold hours watching his monitor screen before he wrote this paper. He was right then, and he is right now. His work, along with input Tom received from WA8DED, is "the book" on sharing a PacketCluster frequency.

I would like to add these thoughts to Tom's work:

- All the PARM settings in the world won't fix a bad RF path.
- User PARMS have NO control over how fast a node sends spots. Only the node PARMS have any effect on the distribution of data from the node.
- Aggressive user PARMS will make the node appear "snappier" when the user is sending something to the node, but those same aggressive user PARMS will cause both the aggressive user AND OTHER users to be disconnected when there is no reason for the disconnect.

What to do? Tell your TNC to be polite! How? Parameters.

Parameters

Parameters (PARMS) are what are used to tell a TNC how to act. PARMS can tell the TNC to be a very aggressive bully, pushing everyone else off the sidewalk, or a very meek individual who always waits for everyone else to go first. PARMS set the personality of the TNC.

Every manufacturer has a slightly different way to "improve" or "redefine" the original "standard" PARMS, so some of what follows may not apply exactly to some TNCs.

Table 2: Timing of User Acknowledgement

0.25	Transmit process time
250.0	Transmit turn on time
6.67	Flag byte (always 01111110 binary)
137.0	Call signs and SSIDs, average 20 chars (range is 14-70 characters)
6.67	Frame type byte (signifies this is a supervisory frame)
13.33	Frame check sequence (used for error checking)
6.67	Flag byte
15.0	Data receipt allowance (carrier hang on)
0.03	Propagation delay
0.25	Receiver process time
435.9	Total User Acknowledgement to Node

Continued on page 10

The ARRL Letter

January 17, 1997

Little LEOs Narrow 2-meter focus to MHz

In their effort to secure spectrum space that includes the 2-meter and 70-cm ham bands, the Little LEOs have narrowed their focus on 2 meters to the 146 to 148-MHz segment. The industry also appears to be attempting to reposition itself as a potential emergency communication adjunct to ham radio.

The little LEOs will use low-Earth-orbiting satellites to provide position-location and two-way data-messaging services to potential customers around the world. Customers would use small, inexpensive transceivers to communicate with satellites. According to the FCC, potential uses of this service include emergency location in remote areas, environmental data collection, vehicle tracking, and time-sensitive business and personal data communication.

For Region 1, a draft little LEO frequency allocation table has proposed adding a primary mobile-satellite allocation of 146 to 148 MHz to the existing allocations for fixed and mobile (except aeronautical mobile [R] services). The table was contained in a working paper — Document IWG-2A/86 Rev. 3, entitled “New Allocations for the Mobile-Satellite Services Operating Below 1 GHz” — submitted by representatives of the Little LEOs industry to Informal Working Group-2A (IWG-2A) January 7.

The 146 to 148-MHz segment is not a ham band in Region 1, but in Regions 2 and 3, a footnote would be added to state: “Additional allocation: the bands 146-148 and 430-440 MHz are also allocated to the mobile-satellite service, limited to non-geostationary satellite systems, for use only during emergency communication situations as a complement to the amateur service in accordance with Resolution No. 640.”

The little LEO proposal also calls for a new primary allocation for the mobile-satellite (space-to-Earth) service for 430-440 MHz in Regions 2 and 3 (ham radio is primary in Region 1), and offers this rationale. “The allocation for the mobile-satellite service within the bands allocated to the amateur service is intended

to be a complement to that latter service in situations involving emergency communications as provided for the [sic] Resolution No. 640.”

As currently drawn, Resolution 640 covers only the 144 to 146-MHz segment of 2 meters and does not apply at all to 70 cm.

In the 440 to 450-MHz band, where the Amateur Service is not listed in the international table of frequency allocations except by footnote (ham radio is secondary in Australia, the US, Jamaica, the Philippines, and Canada), the little LEOs proposed a new worldwide primary mobile-satellite (space-to-Earth) allocation.

Calling their service “inherently global” the little LEO group said the industry needs “frequency allocations that can be used anywhere in the world,” for nongeostationary, nonvoice mobile satellite service through the year 2002. “ITU-R studies indicate sharing is possible,” the industry said.

“If the demand for Little LEO spectrum cannot be satisfied by allocations that could be used on a worldwide basis, one solution is to assign different frequencies for use in the various regions of the world from within the allocations to the mobile satellite service,” the working paper’s preamble said.

Little LEO firms CTA, E-Sat, Final Analysis, GE Starsys, and LEO One submitted the third revision of the lengthy paper — which drew criticism from the ARRL as well as from military and land-mobile interests and the National Telecommunications and Information Administration — at the January 7 session. The ARRL continued its objection to the inclusion of amateur bands and to the misapplication of Resolution 640. For now, Document IWG-2A/86 Rev. 3 is tabled, but it’s expected to come up again at future meetings. IWG-2A meets on January 21 and February 4.

Overall, the little LEOs proposed the following bands for additional allocation to nongeostationary data-only mobile satellite service systems: 138-144, 146-148, 149.9-150.05, 150.05-156.7625, 380-387, 387-390, 390-399.9, 399.9-400.05, 400.15-401, 430-440, 440-450,

470-608 and 614-806 MHz. The paper notes there are proposals concerning 401-406 and 450-470 MHz and for feeder links at 1390-1400 and 1427-1432 MHz in other papers, and that “additional allocation proposals are under construction for the 174-230 MHz band.”

For additional information on the little LEOs situation, read the editorial “It Seems to Us . . .” in by ARRL Executive Vice President David Sumner, K1ZZ, in February 1997 QST.

FCC establishes 5.7-GHz unlicensed service

The FCC has amended Part 15 of its rules to make available 300 MHz of spectrum in the 5-GHz range — including part of secondary Amateur Radio allocations in that region — for use by Unlicensed National Information Infrastructure (U-NII) devices (formerly referred to as NII/SUPERNet devices). The FCC made available 5.15 to 5.35 GHz and 5.725 to 5.825 GHz. Part 15 requires that unlicensed operations not interfere with other services. The U-NII devices will provide short-range, high-speed wireless digital communications on an unlicensed basis.

The 5.650 to 5.925-GHz band is allocated on a secondary basis to the amateur service; additionally, the 5.65 to 5.67-GHz and 5.83 to 5.85-GHz subbands are allocated to the amateur-satellite service on a secondary basis. The original FCC U-NII proposal included 5.725 to 5.875 GHz, but the plan adopted this month excludes 50 MHz of this, including the Amateur Radio-satellite downlink at 5.83 to 5.85 GHz.

The FCC said it anticipates that U-NII devices will support the creation of new wireless local area networks (LANs) and provide wireless access to the National Information Infrastructure (NII). That’s the name the FCC has given the “group of networks, including the public switched telecommunications network, radio and television networks, private communications networks, and other networks not yet built” to serve US communication needs.

The FCC said it was “adopting the minimum technical rules necessary to prevent interference to other services and

The ARRL Letter

Continued from page 8

to ensure that the spectrum is used efficiently" in order to permit "significant flexibility in the design and operation of these devices."

Significantly, the FCC abandoned its original proposal that would have presumed that U-NII devices were not causing harmful interference — even if interference was, in fact, caused — as long as the devices were operated within the technical parameters of the new regulations.

Although it initially proposed a listen-before-talk protocol, the FCC deleted this requirement in its final Report and Order, concluding that requiring such "spectrum etiquette" could delay deployment of U-NII devices and hinder innovation. Instead, the Commission concluded that simple technical rules "should be sufficient to ensure spectrum sharing between incumbent operations and new U-NII devices." The Commission also declined to adopt a channelization plan or a minimum modulation efficiency requirement.

Incumbent users of the 5.725 to 5.825-GHz band either opposed allowing U-NII operation because of interference con-

cerns or urged that sharing studies be completed before that band was made available to U-NII devices.

In its comments on the plan, the ARRL argued against setting up an unlicensed service. The League asserted that longer-range community networks are not consistent with the typical low-power operations authorized by Part 15. The ARRL said that the Communications Act requires that such higher-powered systems with a significant interference potential be operated on a licensed basis, and that the FCC was unlikely to enforce the requirement that unlicensed-device users cease operation if they cause harmful interference to allocated services.

The League argued that permitting the power of U-NII operations to exceed 100 mW EIRP or permitting the use of high-gain antennas by non-spread-spectrum U-NII devices would represent a significant departure from the underlying precepts of Part 15. Although the ARRL opposed the operation of U-NII devices in the 5.725 to 5.825-GHz band, it stated that if a 100-mW EIRP limit and a power spectral density (PSD) limitation of 0.03 mW in any 3-kHz bandwidth were adopted, then U-NII devices should be

able to share this band with incumbent operations.

The FCC concluded that an increase in the power limits proposed in its rulemaking notice was supported by "new material in the record in this proceeding" but said that unrestricted antenna gain should be permitted because of interference concerns. The Commission decided to increase the maximum peak power limit to 50 mW peak transmitter output power with up to 6 dBi antenna gain (which equates to 200 mW EIRP) in the 5.15 to 5.25-GHz band; 250 mW peak transmitter output power with up to 6 dBi antenna gain (which equates to 1 W EIRP) in the 5.25 to 5.35-GHz band; and 1 W peak transmitter output power with up to 6 dBi antenna gain (which equates to 4 W EIRP) permitted in the 5.725 to 5.825-GHz band. Further, the FCC adopted a PSD requirement for U-NII devices that would require that the maximum power be spread across a bandwidth of at least 20 MHz.

The FCC said it believes that the new rules "will foster the development of a broad range of new devices and service offerings that will stimulate economic development and the growth of new industries."

EOF

FCC Delays New RF-Exposure Rules

ARRL special bulletin, Dec. 24 1996

The FCC has postponed for one year, until January 1, 1998, the date for hams to comply with its new RF-exposure regulations. The ARRL was among those requesting the delay this fall. The League said that the additional time was needed for the FCC to draft implementation guidelines that amateurs could use to help them comply with the regulations — released on August 1, 1996 as ET Docket 93-62. Among other things, the regulations would require hams running 50 W PEP or more to conduct "routine RF radiation evaluations" to determine if RF fields were sufficient to cause human exposure to RF radiation levels in excess of those specified in the proposed regulations. The ARRL also has asked the FCC to reconsider the 50 W threshold, but the FCC report (DC 96-112) extending the compliance deadline did not address that issue.

The FCC announcement — which the ARRL obtained just before noon on Christmas Eve — noted that more time would be needed for affected licensees to determine that they comply with the new requirements. The extension also will allow required changes to Amateur Radio operator examinations to be made at the time (routine revisions are made between now and July 1, 1998). In announcing the extension, the FCC said it disagreed with those petitioners who suggested that the time extension "will have significant adverse effects on public health."

Since the FCC announced the RF-exposure regulations, the ARRL has worked with technically knowledgeable volunteers to assist the staff, the RF Safety Committee, and the FCC in coming up with a workable ham radio approach toward RF safety. ARRL Laboratory Supervisor Ed Hare, KA1CV — the ARRL HQ liaison to the ARRL RF

Safety Committee — has spearheaded the ARRL's effort. "The ARRL is very pleased that the FCC extended the compliance date," Hare said. "As all parties involved tried to fully understand the new requirements, it soon became obvious that neither the FCC nor the ham radio community was ready for the January 1, 1997, implementation deadline."

Hare said the delay will give both the FCC and hams more time to better understand the implications of the rules and will give hams an opportunity to evaluate their stations as the regulations will require (see "The FCC's New RF-Exposure Regulations," QST, Jan 1997, p 47). The entire text of Report DC 96-112 may be found on the ARRL Web at <http://www.arrl.org/fcc/dc96-112.html> (or click on What's New or RF Safety News). See Happenings in February QST for additional information.

EOF

How To Stay Connected to your DX PacketCluster Node

Continued from page 7

PARMS are described here with example values which work for most users. It is these PARMS that must be varied to adapt to your radio, path to the Node, and signal strength as compared to other users for the best results. This list of PARMS is only a list of those which affect other users and is not complete. Only the TNC manual can provide a complete description of the parameters built in to a TNC.

The specific values recommended here are just that, recommendations. If your SYSOP has a different set of recommendations, follow his guidance.

A "handy-dandy" chart of "typical" PARM values is not included here, because there is no set of values that is a panacea. Please review each PARM and make an educated selection of a value for your use as a user.

Times are referred to here in milliseconds or seconds. Many TNCs use different units. For instance, TXDELAY is usually quantified in tens of milliseconds, and to set TXDELAY to 250ms means the "VALUE" of TXDELAY must be set to 25 ($25 * 10 = 250$). Only the TNC manual can provide the time units used by the specific TNC. 1000ms = 1 sec.

PERSIST

When the TNC has a packet to send and the frequency is quiet, the value of PERSIST determines the probability of transmitting. This helps the randomness of transmitting thus adding to the chances of not colliding with another user. A value of 255 means you will immediately transmit whenever you have a packet to send and the channel is clear. A value of 64 means you will transmit one time in every four times you ask the PERSIST algorithm for permission to transmit. Some MFJ TNCs implement this algorithm in a slightly different manner and call the parameter "SLOTS" with SLOTS 0 equal to PERSIST 255, SLOTS 128 equal to PERSIST 1.

On a very busy channel, node PERSIST should be 20 or less, and user PERSIST should be 10 - 15. This will make the channel seem "sluggish" when composing mail or sending DX spots, but it will be less aggressive and keep you connected. If a Network node is present on the user channel and it carries a substantial portion of the channel traffic, it

should run a PERSIST closer to the node value.

Lightly loaded channels can stand higher PERSIST values determined by experimentation.

See also PPERSIST (note two P's in PPERSIST).

SLOTTIME

If the TNC has a packet to send and it has asked PERSIST for permission to transmit and that permission was denied, the TNC waits SLOTTIME time and asks PERSIST again for permission to transmit. Some MFJ TNCs implement this algorithm in a slightly different manner and call the parameter "DEADTIME".

Node SLOTTIME on a busy channel should be 200ms or more, and users should never have the same SLOTTIME as the node. Usually, users attempt to avoid SLOTTIME values in use by other users, and users set SLOTTIME to a much longer time than the node. A good starting place on a busy channel for a user is 250ms.

RESPTIME (T2 Timer)

Acknowledgement packets are delayed at least RESPTIME (response time). If there are other parameters which impose delays, they do not add to RESPTIME. The intent of RESPTIME is to give an acknowledgement packet an opportunity to be "piggybacked" with an outgoing information frame.

If PERSIST is active, RESPTIME can be set to a short time, such as 500ms to 2 seconds. If PERSIST is not active, RESPTIME should be longer than 1 second.

DWAIT

This value was designed to avoid collisions with digipeated packets. A TNC will wait DWAIT time after the radio channel is quiet before sending a packet. If this is less time than RESPTIME, then RESPTIME will apply for acknowledgement packets. If PERSIST is used, DWAIT is not operative or should be set to zero.

If DWAIT must be used, it should be set to one second or more to allow users who have PERSIST to respond first.

TXDELAY

The TNC waits TXDELAY time after keying up the transmitter before sending data. This gives the transmitter time to

come on frequency and up to full power before data is transmitted. It also gives the user's receiver time to open squelch and get ready to receive data. TXDELAY should not be appreciably longer than necessary as it uses up channel time. A value of 250ms (.25 seconds) is typical.

FRACK (T1 Timer)

After transmitting a packet requiring acknowledgement, the TNC waits FRACK time before sending the packet again. If the packet is resent, the retry counter is incremented.

If the node sends a DX spot to a user and the node FRACK is set to 15 seconds, the node will wait 15 seconds for an acknowledgement from the user before resending the DX spot.

User FRACK should be set to a LONG time, at least 10 seconds.

CHECK (T3 timer)

Also known as IDLETIME, this timer sets the maximum time for no activity between the two connected stations. When this time is expired, the TNC sends a supervisory frame to see if the other station is still active. If this frame is not responded to in the amount of RETRY attempts, the connection is broken. Check polling often creates a lot of overhead and if the path is marginal to begin with, or conditions change for a few minutes, a disconnect will occur. Generally, all CHECK functions are performed at the node, and the user CHECK time should be disabled. If the TNC does not allow CHECK to be disabled, it should be set to the longest possible time (an hour or more?).

RETRY

If the TNC sends a packet which requires an acknowledgement, such as an information packet or a check packet, and if the TNC does not receive the acknowledgement in FRACK time, the TNC will send the packet again. It will send the packet RETRY times before giving up and performing a "hard disconnect".

PacketCluster nodes on busy channels usually set RETRY to 7 or less, thus disconnecting stations with poor connects in favor of other stations who do not require resent packets.

Users have little call to RETRY to the node, so a value of 10 is typical.

PPERSIST

Some TNCs have this parameter which must be explicitly turned on to enable PERSIST and SLOTTIME. PPERSIST should be ON if available. Note this is PPERSIST (two P's at the beginning), not PERSIST.

ACKPRIOR

Most TNCs do not have this parameter. If ACKPRIORITY is on, then the acknowledgement packets do not have to wait for the PERSIST or SLOTS algorithm to permit transmission. There are two very diverse schools of thought on ACKPRIOR. One says it really helps a busy PacketCluster channel, and the other says it is too aggressive and has an adverse affect on channel throughput. The best policy is to leave it off unless requested by the node SYSOP.

Other Parameters

There are other PARMS which affect the throughput on a PacketCluster user channel which are not mentioned here. MAXFRAME and PACLEN as set at the node will have an effect, as will user abuse of some PARMS such as CONPERM. This list of PARMS is NOT complete, but covers most of the ground.

Observation

PARM settings are important when many users share a channel. On a busy channel, users should be very passive to prevent the node from "retrying out" to the user and to prevent the user from "retrying out" to the node. There is no PARM setting by the user that will force the node to send DX spots faster.

Results

It is difficult to predict how well adjustments of parameters will calm a busy node frequency. One measure is how well the users stay connected during a high activity period, such as a contest. Experience shows that 20 or more users can stay connected to a node even during sustained periods averaging a DX spot every minute or less if the parameters are carefully coordinated. However, one new user can show up in the middle of a contest with aggressive parameters, do a SH/DX 25, and in a short time he is the only station connected!

Conclusion

Hopefully this discussion will help PacketCluster users to understand the following:

- What happens when a node sends a DX spot to a user. It takes 1.4 seconds under perfect conditions.
- What happens when a node sends a DX spot to a lot of users. RF riot! Packet pileup!
- Parameters set TNC personality. Passive is better! Passive PARMS maintain a connection.

Prepared by Jay O'Brien, W6GO
w6go@netcom.com

References

1. DX spot length (75 bytes): personal observation and knowledge, W6GO.
2. Component part measurements, 3% bit stuffing: ARRL Computer Networking conference 4, San Francisco, March 30, 1985, paper by David Engle, KE6ZE, titled "PACKET RADIO TIMING CONSIDERATIONS" which detailed actual times measured by KE6ZE and KA6M at 1200 baud.
3. Discussion of Parameters by Tom Wood, N6IXX: On No Cal/Nev DXPSN.
4. TNC Manuals: Kantronics, AEA, DRSI, MFJ, PacComm, Net/Rom, G8BPQ.
5. Personal knowledge and experimentation: W6GO.

EOF

Where to Find DXPSN

Location	Call	Alias	Frequency	Coverage
California City	K6ZZ		144.490	Antelope Valley area
	K6ZZ	EARN8	144.490	Oak Peak
Castro Valley	W6RGG	DXCV	145.770	East, West, South SF Bay area
Chico	K6EL	DXC	145.670	Chico
	K6EL	DXW	145.670	Oroville, Red Bluff
	K6EL	DX	144.950	South Fork Mtn - Redding area
Hanford	K6UR	DXFRES	144.950	Bear Mtn, Fresno area
	K6UR	DX7	145.770	Mt. Adelaide, Bakersfield area
	K6UR	DX16	145.770	Oakhurst
Livermore	NF6S	DXL	145.770	Tri-Valley
Los Gatos	N6ST	DXLG	146.595	Santa Cruz Mtns, Monterey Bay
	N6ST	DXF	146.595	Santa Cruz/Los Gatos
Mill Valley	WA6CTA	DXCTA	1299.890	Napa/Benicia/Vallejo/Marin
	WA6CTA	DXFMT	1299.890	San Jose - So. SF Bay
Mountain View	K6LLK	DXMV	144.950	Mtn View, Ntwk Node and Hub
Oakdale	K6OQ		146.580	Modesto area
Penngrove	K6ANP	DXANP	144.950	Sonoma County
Pittsburg	AH0U	DXPB	146.580	Walnut Creek area
	AH0U	DX4	146.580	Sugarloaf Mt. - Napa valley
Reno, Nevada	N7TR	RENODX	144.950, 146.58, 441.500 (2400 baud), 51.7	Low Level in Reno
	N7TR	PCDX1	146.580	Virginia City, NV
	N7TR	PCDX	144.950	
	N7TR	DX2400	441.500 (2400 baud)	
Rio Linda	W6GO	DXRL	144.950	
San Francisco	W6OTC	DXSF	145.670	Sacramento, Woodland, Davis
				East Bay and North

Note: K6OZL is now K6UR

Northern California Packet Band Plan

50 MHz

51.12	SOCAL backbone
51.14	Experimental
51.16	Keyboard to Keyboard
51.18	Experimental

144 MHz

144.91	Keyboard to Keyboard
144.93	BBS ¹
144.95	DX Cluster
144.97	BBS
144.99	BBS
145.01	APRS
145.03	Keyboard to Keyboard
145.05	Keyboard to Keyboard
145.07	BBS
145.09	BBS
145.61	9600 bps ²
145.63	BBS
145.65	TCP/IP 9600 bps
145.67	DX Cluster
145.69	BBS
145.71	9600 bps
145.73	BBS
145.75	TCP/IP
145.77	DX Cluster
145.79	BBS
146.58	DX Cluster

¹Some TCP/IP in Sacramento grandfathered

²BBS forwarding in Monterey Bay area on minimal interference basis.

220 MHz

223.54	Node uplink (East Bay)
223.56	Node uplink (West Bay)
223.58	Node uplink ("Garlic") ¹
223.60	Node uplink (Sacramento Valley)
223.62	Node uplink (South Bay)
223.64	TCP/IP
223.66	Keyboard to Keyboard
223.68	BBS
223.70	Node uplink (Monterey Bay & N. Coast)
223.72	Node uplink (North Bay)
223.74	DX Backbone

¹TCP/IP interlink (Sacramento) Not to interfere with node uplink.

440 MHz

441.50	Any
--------	-----

Packet channels below 440MHz are available, but must be coordinated on a case-by-case basis as auxiliary allocations in conjunction with NARCC. Contact WD6CMU for details.

900 MHz

903.500	1 Mhz wide - TCP/IP
904.500	1 Mhz wide - TCP/IP

915.500	1 Mhz wide - Experimental
916.100	200 Khz Wide - Experimental
916.300	200 Khz Wide - Experimental
916.500	200 Khz Wide - Experimental
916.650	100 Khz Wide - Experimental
916.750	100 Khz Wide - Experimental
916.810	20 Khz Wide - Experimental
916.830	20 Khz Wide - Experimental
916.850	20 Khz Wide - Experimental
916.870	20 Khz Wide - Experimental
916.890	20 Khz Wide - Experimental
916.910	20 Khz Wide - Experimental
916.930	20 Khz Wide - Experimental
916.950	20 Khz Wide - Experimental
916.970	20 Khz Wide - Experimental
916.990	20 Khz Wide - LAN links (Contra Costa County only)

900 MHz activity is on a non-interference basis to vehicle locator service. 900 MHz is not considered suitable for omnidirectional systems, use for point-to-point links only.

1296 MHz

1248.500	1 Mhz wide - Experimental ¹
1249.000 to	
1249.450	Unchannelized - Experimental
1249.500	100 Khz wide - Experimental
1249.600	100 Khz wide - Experimental ¹
1249.700	100 Khz wide - Experimental ¹
1249.800	100 Khz wide - Experimental ¹
1249.870	20 Khz wide - Experimental
1249.890	20 Khz wide - DX Packet Cluster
1249.910	20 Khz wide - Experimental ¹
1249.930	20 Khz wide - Experimental ¹
1249.950	20 Khz wide - Experimental ¹
1249.970	20 Khz wide - Experimental ¹
1249.990	20 Khz wide - Experimental ¹
1250.500	1 Mhz wide - Experimental
1251.500	1 Mhz wide - Experimental
1297.000 to	
1298.000	Unchannelized - Experimental
1298.500	1 Mhz wide - Experimental ¹
1299.000 to	
1299.450	Unchannelized - Experimental
1299.500	100 Khz wide - Experimental
1299.600	100 Khz wide - Experimental
1299.700	100 Khz wide - Experimental ¹
1299.800	100 Khz wide - Experimental ¹
1299.870	20 Khz wide - Experimental
1299.890	20 Khz wide - DX Packet Cluster
1299.910	20 Khz wide - Experimental ¹
1299.930	20 Khz wide - Experimental ¹
1299.950	20 Khz wide - Experimental ¹
1299.970	20 Khz wide - Experimental ¹
1299.990	20 Khz wide - Experimental ¹

¹Full-duplex channel pairs: 1248 <-> 1298 and 1249 <-> 1299, eg: 1249.910 <-> 1299.910

Northern California Packet Band Plan

Continued from previous page

Definitions

Experimental — Anything goes except full service BBS or any 24 Hr/Day services (nodes, gateways, etc). This is where you can come and test new gear, programs, etc. These channels may be reassigned in the near future so no permanent activities please.

Backbone, Uplink, Interlink — No uncoordinated stations. These channels are for specific purposes as defined by the NCPA and affiliated groups. This is where the various BBS, nodes, and clusters interlink and are very high usage channels. Please use the normal 2 meter entry points of the network you want to access rather than these channels.

Keyboard to Keyboard — Anything but full service BBS, TCP/IP, or DX Cluster. Primarily chat channels. These are also the primary emergency channels.

BBS — These frequencies are for user access to a full-service BBS. Keyboard-to-keyboard is tolerated. Please don't put high level nodes or digipeaters on these channels since they are *local*. A low-level direct link or node that links into a backbone on another frequency is the proper implementation.

LAN — Local Area Network. BBSs are grouped in LANs for more efficient forwarding. A LAN frequency is the forwarding channel within a LAN. Please do not attempt to access the BBS network on these channels unless you are coordinated with PSNC.

Personal Mailbox/Maildrop — A BBS-like system, often running entirely within a TNC, with a small number of users that handles information of a personal, local, or special-purpose nature. A mailbox is allowed on keyboard-to-keyboard channels *only* if it does not forward with other BBSs (personal or otherwise). Mailboxes may forward with full-service BBSs on LAN channels at the discretion of the BBS's SYSOP.

TCP/IP — Stations using TCP/IP protocol on top of AX.25. Some AX.25 tolerated to communicate to TCP/IP stations if a compatible p-persistence access method is used.

DX Cluster — Northern California DX spotting network. No other activity should be on these channels.

9600 Bps — Stations using 9600 Bps with direct FSK (G3RUH, TAPR, etc.) modems.

Procedure for changes

Users should contact either the frequency coordinator or the NCPA board. The frequency coordinator will then present the requests to the board at the next meeting along with suggested assignments. The NCPA board elected by you, the packet user, makes all assignments!

Electronic mail is preferred.

Note: NCPA does not coordinate individual stations, nodes, etc. The only station coordination is done by KA6EYH for bulletin board systems.

EOF

Where to Find a BBS

N0ARY-1	Sunnyvale	144.93, 433.37
KE6BX	Hollister	144.93
N6VZT	Brentwood	144.93
KJ6FY-1	Benicia	144.93
AC6NY	San Ramon	144.97
WD6CMU	Richmond	144.97
N6EEG	Berkeley	144.97
N6LDL	Los Gatos	144.97, 145.71 ¹ , 441.50
KD6JZZ-2	Sonora	144.97, 223.54
WA6EWV-1	S. Lake Tahoe	144.97
KA6FUB	Martinez	144.99, 441.50
KO6LX	Gilroy	144.99
KE6LW-1	Yuba City	144.99, 441.50
W6PW-3	San Francisco	144.99
W6SF	Stockton	144.99
N6IU-1	Palo Alto	145.07, 223.56
KM6PX-1	Citrus Heights	145.07, 441.50
KC6PJW	Rohnert Park	145.07, 441.50
WA6NWE-1	North Highlands	145.09, 441.50, 144.93 ²
WA6YHJ-1	Livermore	145.09
KK6WD	Redding	145.09
KB6AML	Concord	145.09, 441.50
KB5IC	Almaden	145.63
KE6LW-1	Yuba City	145.63
WA6HAM	Pittsburg	145.69
KA6EYH-2	Daly City	145.69, 441.50
KO6RI-1	Sacramento	145.71 ¹
KA6JLT-2	Menlo Park	145.73, 145.71 ¹ , 441.50
AA6QR	Orinda	145.73
KB6MER-1	San Jose	145.73
KA6EYH-2	Pacifica	145.75 ²
W6YX-9	Stanford U.	145.75 ² , 433.43 ¹
WH6IO	Benicia	145.75 ² , 433.43 ¹
K7WWA	Willits	145.79
W6CUS-1	Richmond	145.79
N6QMY-1	Fremont	145.79

¹9600 baud port

²TCP/IP port

EOF

CONSTITUTION OF THE NORTHERN CALIFORNIA PACKET ASSOCIATION

This document shall serve as the CONSTITUTION and BYLAWS of the Northern California Packet Association, and may be referred to as either.

ARTICLE I Purpose

The Northern California Packet Association is an educational, research, and public service organization. The purpose of the Association is to foster the development of digital Amateur Radio communications in Northern California. This field is occupied foremost by individual Amateurs who, individually and in groups, make efforts to research, design, test, construct, operate, and use digital systems. These individuals and groups also make efforts to recruit and educate others in the field. All of these efforts can benefit from planning and coordination, and it is the purpose of the Association to provide the forum for such to take place. To achieve these goals the Association is organized to function as a working group, rather than as a social organization, and it shall, among other things, strive to do the following:

1. Improve the state of the art in the field of digital communications via Amateur Radio.
2. Encourage and educate interested persons and groups in the area of digital communications via Amateur Radio.
3. Encourage the construction, operation, and expansion of local, regional, national, and worldwide communications systems using digital methods via Amateur Radio.
4. Encourage the development of new and diverse methods of digital communications.
5. Bring together a cross-section of all the diverse interests in the field of Amateur Radio digital communications so all will have a voice and the opportunity to offer their knowledge, experience, talents, and goals to the benefit of the digital community.
6. Select frequencies for digital use, working with users and coordination groups for non-digital modes, with an aim to maximize the ability of the Amateur Radio Service to accomplish its purposes as set out in Federal Regulations.
7. Coordinate use of digital frequencies so that the goals of the digital community are best facilitated.
8. Represent the interests of the Northern California digital community in its contacts with others, such as regulatory bodies, coordination groups for non-digital modes, and digital coordination groups serving other geographical areas.
9. Perform all these activities in Northern California, plus in any contiguous areas if the digital users in those areas and the Association should so decide.

ARTICLE II Members

A. Any individual or bona fide Amateur Radio club interested in the coordination of digital communications may become a Member upon making application and paying the dues. Memberships run from the time of joining until the same date the following year. Memberships automatically expire unless renewal dues are submitted. Mem-

bership may be denied or revoked for cause. "Cause" is defined as conduct by the Member inimical to the Association's interest, and shall include, among other things, the inability to work with others in carrying out the Association's purposes.

B. Each bona fide Amateur Radio club which joins the Association shall designate a person to act as their representative. A club may also designate an alternate to serve if its representative is absent. Such designations shall become effective when the Secretary is notified of them by the club, and they shall remain in effect until he is notified otherwise.

C. Each individual Member and each representative (or alternate) of each club which is a Member shall have one vote at General Meetings of the Association.

D. All records of the Association shall be open to the inspection of any Member, and any Member shall have the right to timely copies of such records at cost and in any reasonable format requested. Only information in the nature of access codes may be withheld from such a request.

E. Lists of names of Members, as well as other information provided by the Association from its records, shall be used only for internal matters concerning the Association or the digital community it serves. Such lists shall not be used for solicitation, by other associations, for publication, or for commercial purposes of any kind. The Board may in writing waive these restrictions in circumstances where they deem it appropriate.

F. Members may band together to form Special Interest Groups in cases where they share an interest in a specific aspect of digital communications. They may select individuals to represent their group before the Board and thereby achieve greater participation in the Association's activities. Such representatives shall not become voting members of the Board because of that status, but the Board shall make an effort to obtain and weigh their opinion before making decisions concerning the interests of the group.

ARTICLE III Board of Directors

A. The Association shall be run by a **Board of Directors** (Board) which shall each year originally consist of seven individuals elected at the April General Meeting to serve for one year beginning May 1. The Board may at any time elect additional individuals to the Board in order to achieve a Board reflecting the diversity of interests in the digital community; however the maximum size of the Board shall be eleven members. These additional Board members shall, upon their election, have equal standing with the electing members and they shall have terms of office to expire at the same time as those of the electing Board. Each Board member must be an individual Member of the Association.

B. The Board shall manage the Association, and it shall perform other duties attributed to it by custom or law.

C. Board meetings shall be held in Northern California unless all Board members agree otherwise. Board meetings may be called by any three Board members. To have a Board meeting, each Board member must have been notified of it or have waived the right to notice. Notice may be put in the mail, sent digitally, or phoned to each Board member at least

4 days before the meeting, or publication in the newsletter will suffice. Half of the Board members constitute a quorum to do business.

D. A majority of those voting on any matter is required for it to pass. *Exception:* An affirmative vote of two-thirds of the Board members is required to remove a Board member from that body or revoke a membership in the Association.

ARTICLE IV Officers

A. Officers shall be appointed by the Board. Officers need not be Members of the Association, nor must they be members of the Board. The Officers shall carry out the day-to-day management of the affairs of the Association in accordance with direction given them by the Board.

B. The Association shall have five Officers with duties as follows:

1. The **President** shall run Association meetings. His primary function is to coordinate. He shall strive to get other people to do as much as possible and thus increase involvement by others.

2. The **Vice President** shall assist the President, and shall perform the President's work if the President is absent.

3. The **Secretary** shall keep the Association's records, except financial and property records. He shall keep minutes of meetings and issue Association correspondence.

4. The **Treasurer** shall handle the Association's money. He shall make reports on the Association's financial condition as needed. He shall keep an inventory of any materials owned by, or on loan to the Association.

5. The **Newsletter Editor** shall produce the Association's newsletter. The newsletter shall be sent to all Members of the Association, all Board members, all Officers, and all Appointees. It may be sent to others at the Editor's discretion. All notices of General Meetings and minutes of all General and Board Meetings shall be published in the newsletter. Newsletters giving notice of a General Meeting must be placed in the mail thirty days before the Meeting.

C. In addition to the duties specifically listed, each Officer shall have the duties attributed to his office by custom or law.

D. The Board may designate individuals or committees to assist in specific duties (**Appointees**). Technical committees, frequency coordinators, and the like are examples. The Board shall specify the extent of the authority of such Appointees in the motion appointing them.

E. Officers and Appointees serve at the pleasure of the Board, and the Board may remove such persons from their positions and/or redefine their authority at any time. The term of office of Officers and Appointees terminates on April 30 of each year.

ARTICLE V General Meetings

A. A GENERAL MEETING shall be held, as far as practical, every April. Additional General Meetings may be held during the year upon being called by the Board, or upon petition of the members per paragraph C of this article. General Meetings shall always be in Northern California. General Meetings shall be held only on Saturdays or Sundays, with a starting time no earlier than 10 a.m. The pur-

pose of General Meetings is to provide a line of communications between the Board and Officers on one hand and the Members and members of the public on the other.

B. The final power in the Association rests with its Members; a vote by the Members prevails over a vote by the Board if they conflict. Any Member may bring any action up for a vote, but only if notice of the topic to be voted on has been published in the newsletter. The Editor shall include any notices of this type submitted to him by a Member.

C. Any fifteen Members may submit to the Secretary a petition calling a General Meeting. The petition shall state the date (at least 33 days hence), time, place, and topics to be discussed. The petitioners shall then within three days place a copy of the petition in the mail to all usual recipients of the newsletter. If the Secretary's office is vacant or he cannot be located in Northern California, delivery of the petition to another Officer or a Board Member shall suffice.

D. Items of business may be brought before a General Meeting by the Board of Directors without prior notice in the newsletter, but such notice is always required for actions at a General Meeting to amend this Constitution, to remove a Board member, or to revoke a membership in the Association.

E. Fifteen percent of the Members, but at least ten in number, must be present at a General Meeting to constitute a quorum, and a majority of those voting on a measure is required for it to pass. *Exception:* Two-thirds of those voting is needed to amend this Constitution, remove a Board member, or revoke a membership in the Association.

ARTICLE VI Required Notice

If action to remove a Board member or revoke a membership in the Association is to occur, written notice must be put in the mail to the affected party at least 15 days beforehand, so that he can have his say at the General or Board Meeting where the vote is to be taken. Temporary actions of this type may be taken without notice in an emergency, but no final action may be taken without it.

ARTICLE VII Amendments

Amendments may be made to this Constitution only by the Members (not by the Board of Directors). Proposed Amendments shall be set out in full in the newsletter preceding the General Meeting at which the vote is to be taken. The newsletter shall be put in the mail by first class mail to all Members at least thirty days before such meeting.

ARTICLE VIII Implementation

This Constitution shall become effective on an interim basis, until the next General Meeting, when approved by the Board. It shall be submitted to the membership for approval at the next General Meeting, and it shall become effective upon their approval.

*Ratified by vote of the general membership,
February 4, 1990*

Amended May 3, 1992

Change to the Bylaws

The membership will be asked to vote on the following two changes to the bylaws at the May General meeting. The board recommends approval. (Please refer to the current bylaws which appears on the previous two pages.)

In order to make the NCPA officially more congenial to packet special interest groups, regardless of how many NCPA members they may have, it was decided to remove reference to the NCPA mem-

bership status of these groups. To do this, it is proposed that in Article 2, paragraph F, the first word, "Members" should be changed to "Amateur radio operators".

In order to clearly allow the board to meet electronically, the following paragraph is proposed under Article 3 (Board of Directors), just after paragraph C (which mentions board meetings):

D. The Board may elect to meet electronically (e.g. internet remailer) so long as all Directors and Officers have

approximately equal access. Such meetings may occur often and deal with single issues as they come up. As far as is practical, every effort must be made to make such meetings as open and accessible as face-to-face meetings.

Further more, under Article 3, the paragraph currently labeled as "D" will be relabeled as "E" so the above can be inserted in logical order.

EOF

ARRL Opposes Little LEO Effort to Include 219 to 225 MHz

From The ARRL Letter, February 14, 1997

Commercial satellite interests seeking access to bands below 1 GHz — including amateur allocations at 146 and 430 MHz — now have added 220 MHz to their "wish list." For the first time, Little LEO (low-earth orbiting satellite) interests have proposed including 219-225 MHz in their list of desired allocations for the non-voice, non-geostationary (NVNG) mobile-satellite service (MSS). The move was contained in the industry's so-called "flexible allocation proposal," delivered at the February 13, 1997, meeting of FCC Informal Working Group (IWG) 2A. Little LEO targets now include 146 to 148, 219 to 225 and 430 to 450 MHz. The ARRL and AMSAT were among those objecting to the concept, and the League is urging those who agree with their position to comment to the FCC by March 4. IWG-2A has been preparing draft proposals for the 1997 World Radiocommunication Conference (WRC-97). These will be reviewed during a March 5 meeting of the FCC's WRC-97 Industry Advisory Committee that is preparing draft proposals for consideration by the United States as it gets ready for WRC-97.

The ARRL and AMSAT statement said the latest proposal affecting amateur allocations in the 219 to 225 MHz segment came "at the last possible moment" and "without any technical support whatsoever." The League and AMSAT pointed out that the little LEO proponents have had more than a year to complete a

technical study of the possibilities of sharing with the amateur services in the 144 to 148 MHz and 420 to 450 MHz bands. "They have not demonstrated compatibility for sharing these amateur bands but over the evolution of their document have proposed various 'new ideas' for use of these bands."

The little LEO flexible allocation strategy for WRC-97 — submitted as IWG-2A/86 (Rev. 6) — is to propose broad allocations. The apparent theory is that most administrations would find reasons to oppose little LEO use of specific bands in the crowded spectrum below 1 GHz, but that a broad allocation would permit different implementations in different countries depending on local circumstances.

At the February 13 meeting, a coalition of spectrum interests — including land mobile, amateur, broadcasting, and military — opposed the flexible allocation concept on three grounds: that the concept is simply an invention to avoid performing technical sharing studies that would demonstrate the unfeasibility of sharing; that it is inconsistent with decades of ITU allocations practices; and that, if adopted, the concept would be counter to US interests. The coalition document is identified as IWG-2A/107.

The ARRL and AMSAT submitted a further statement of opposition, citing the absence of any technical studies that might support sharing with the amateur service or the amateur-satellite service

and pointing out that the little LEOs have completely mischaracterized the nature of ITU Resolution 640 regarding the use of certain amateur bands in the event of natural disasters. The ARRL/AMSAT paper, revised to reflect opposition to the late proposal to include 219-225 MHz, is identified as IWG-2A/108 (Rev. 1).

Amateurs also might find interesting the comments of the Department of Defense, identified as IWG-2A/101 (Rev. 1). These address the 430 to 450 MHz segment the Little LEOs seek to share.

Anyone wishing to register support for the ARRL/AMSAT submission should send a brief e-mail message to wrc97@fcc.gov. The Subject line should say "Reference No. ISP-96-005 IWG-2A." A simple statement to this effect, "I support the ARRL/AMSAT opposition to the NVNG MSS flexible allocation proposal," will be included in the public record and will help to drive home the point that there is broad-based opposition to poorly conceived sharing proposals.

Please note! The proposals the League opposes are not FCC proposals, nor are they endorsed by any other branch of the government. They are industry proposals. The League's objective is to demonstrate there is broad citizen opposition to the industry proposals, so the government will not adopt them as US proposals. So, please don't "flame" the FCC if you comment.

EOF

NCPA Board Meeting

Feb. 15, 1997

The NCPA Board of Directors meeting took place at the Sunnyvale Public Safety Building, 700 All American Way in Sunnyvale (thanks to Howard N6HM), on Saturday, Feb. 15, 1997 at 10 AM.

Present were the following board members: WB6YRU, W9HGI, and N6HM. Since there is no quorum, all decisions were declared tentative until a quorum of directors can be consulted.

The "meeting" continued via the Board's internet remailer. There were a few modifications made and a vote taken to approve this final version. There was a quorum on that vote with five voting in favor and one abstention.

Downlink editor/Frequency coordinator

Eric WD6CMU has offered to take the Editor's spot if someone else takes the Frequency Coordinator position. Gary WB6YRU offered to take over as Frequency Coordinator. The switch will become effective after the next Downlink is published. If someone else wants either job, say so now.

Packet resource database

The NCPA had started a database of all packet activity some time ago. It had not been updated for years. WB6YRU obtained a copy of the database from WD6CMU and made updates from available lists. As of mid 1996, it now includes listings from the PSNC, CENCA, DXPSN, and some data from the CPRL (CA Packet Resource List). There will be renewed efforts to keep the database current. Howard N6HM will provide information about some keyboard nodes.

Bylaw modifications

Article 2, paragraph F of the bylaws states:

F. Members may band together to form Special Interest Groups in cases where they share an interest in a specific aspect of digital communications. They may select individuals to represent their group before the Board and thereby achieve greater participation in the Association's activities. Such representatives shall not become voting members of the Board because of that status, but the Board shall make an effort to obtain and weigh their opinion before making decisions concerning the interests of the group.

Change the first word, "Members" to "Amateur radio operators"

Article 3 (Board of Directors), paragraph C mentions board meetings:

C. Board meetings shall be held in Northern California unless all Board members agree otherwise. Board meetings may be called by any three Board members. To have a Board meeting, each Board member must have been notified of it or have waived the right to notice. Notice may be put in the

mail, sent digitally, or phoned to each Board member at least 4 days before the meeting, or publication in the newsletter will suffice. Half of the Board members constitute a quorum to do business.

If electronic meetings are to take place, provisions should be made for it in the bylaws. The following additional paragraph is proposed:

D. The Board may elect to meet electronically (e.g. internet remailer) so long as all Directors and Officers have approximately equal access. Such meetings may occur often and deal with single issues as they come up. As far as is practical, every effort must be made to make such meetings as open and accessible as face-to-face meetings.

The paragraph currently labeled as "D" will be relabeled as "E" so the above can be inserted in logical order.

Notice of these proposed bylaw changes will be given in the Downlink. It will be voted on at the next general membership meeting.

Memorandum of understanding with NARCC

Not much has happened on this yet. It was mentioned that the MoU should basically define each group (NCPA & NARCC), specifying the duties and goals of each. The idea is to have mutual recognition and agreement of each group's existence, purpose, and area of authority. WB6YRU, N6HM, and W9HGI will work on it.

70 cm packet sub-band issue

Howard N6HM: NARCC locking up the whole 70 cm band is "unacceptable". Suggested pushing the 70 cm issue. Specifically, investigate other widely recognized band plans (including NARCC) and basically "stake a claim" to a sub-band for packet. The sub-band probably should be above 440 MHz. We should publish this in the Spring issue of the Downlink as a "recommended" or "suggested" 70 cm packet sub-band. We should probably start with more than we want, so we can "bargain down" to what we really need.

Howard pointed out that at one time the FCC recognized only one coordinator in each area. Some abused the power and law suites were the result. The FCC abandon the idea in favor of another scheme in which any coordinating person or group recognized by amateurs in the area also will be recognized by the FCC.

W6GO said DXPSN will back us on this plan. He noted that NARCC evidently has allocated link frequencies in the ATV channels (420 to 432 MHz) and DXPSN is interested in forwarding frequencies there.

Possibility of allocations within 144.30-144.50

AMSAT has indicated it has no plans for using this satellite sub-band in the future. The only exception are three uplink channels for space stations: 144.45, 144.47, and 144.49. We have

information that sometimes balloon launches use 144.34 for packet telemetry. Some organizations have already started looking into re-allocating this sub-band. Canada reportedly already has established 144.39 as APRS.

It was pointed out that having someone on 144.34 effectively takes up two channels. Balloon operations don't represent heavy usage and they probably would never need two channels. It was suggested that they be moved to 144.33 or 144.35. It was mentioned that some operations on 144.34 may be crystal controlled and not easily moved. An alternate is to allocate two channels around 144.34 with the intention that they would eventually migrate to one or the other. Another possibility is to allocate one of those to "shared" usage, (something with relatively light usage to minimize interference) to encourage the balloon activity to migrate to the other channel.

Further discussions and information indicate two channels for balloon activity is not a good idea. KO6RI (TCP/IP): TCP/IP needs a channel. W6GO (DXPSN): expressed concern that packet allocations here may cause out-of-band interference to nearby weak signal operations. Notes could be added to these allocations indicating the importance of not over deviating.

The NCPA will make allocations for packet in this sub-band. Specific allocations will be worked out later. It was decided to maintain these allocations as "temporary" for a while, just in case there is a future problem with it being a former satellite sub-band.

Modify definitions in band plan

Many people have expressed confusion over some of the definitions in the band plan. The following is intended to make everything more clear. The definition in the band plan of "LAN" will be changed from BBS user frequency to mean LAN forwarding frequency. A new term "BBS" will be added to mean BBS user frequency. The following text was proposed:

BBS — These frequencies are for user access to a full-service BBS. Keyboard-to-keyboard is tolerated. Please don't put high level nodes or digipeaters on these channels since they are "local". A low-level direct link or node that links into a backbone on another frequency is the proper implementation.

LAN — Local Area Network. BBSs are grouped into LANs for more efficient forwarding. A LAN frequency is the forwarding channel within a LAN. Please do not attempt to access the BBS network on these channels.

The term "Personal BBS" will be changed to "Personal mailbox/maildrop." The term "PBBS" within that definition will be changed to "mailbox."

Continued on page 18

NCPA Board Meeting

Continued from page 17

Pacificon '97

Last time we planned for certain activities, then had trouble getting enough volunteers. One of the planned talks had to be canceled. This time we'll line up the people first.

Carol W9HGI volunteered to talk on packet satellites again (has some new info) if there is interest. Carol is also interested being on the Packet Q & A session again. An Intro to Packet talk would be nice if we can get a speaker.

Howard N6HM will have his packet remote control demo there again if currently planned modifications are done in time. So far, Carol W9HGI, Howard N6HM, and Gary WB6YRU volunteered to work at the NCPA table.

This is a good start, but more volunteers are needed; so are "activities" at the table.

Electronic meeting idea — how to make it more "open"

The consensus was that having meetings electronically is a good idea, especially for people

out of the area. Because of the nature of "e-mail meetings" it's just as easy to discuss and vote on individual issues as they come up rather than bunch it all up into an agenda. In order to make them more open, the following ideas were proposed:

- * Put out summaries (as packet bulletins) of discussions; comments coming from packet should be posted to the remailer.

- * Try to get comments from "interested people/groups" before voting.

- * Publish the board remailer address and invite non-board members to participate, (this means more work for the one who maintains the remailer list, but seems like the only way).

- * Mention the remailer address and activity in the Downlink.

(see bylaw modifications)

Additional discussions proposed the use of two remailers: one for the general public and a second one for only board members. The "board-only" remailer might be a member of the general

remailer. KO6RI can set up the general remailer on his system. That system allows people to subscribe automatically.

Next meetings

The General Meeting will be held in the afternoon on the second Saturday in May in the South Bay area. This is to take advantage of participation in the Foothill Flea Market. It was felt that holding the meeting on the second Saturday in April may be too soon. The board will meet immediately there after.

ARRL affiliation

The Secretary will find the percentage of NCPA members who are also ARRL members and will investigate getting affiliation with the ARRL. This was supposed to have been done by the previous secretary, but apparently no progress was made.

Meeting adjourned 1:42 PM

EOF

PSNC Meeting May 10

On Saturday morning, May 10, the usual monthly swap meet will be held at Foothill College. At 1 pm, the annual General Meeting of the Northern California Packet Association will be held at Fair Oaks Park in Sunnyvale.

Since many of us will be going to Foothill and to the NCPA meeting, some of us thought that this would be a good time to also hold a PSNC (sysop) meeting. We haven't met since Pacificon in October and there are some upcoming plans and projects that need our attention.

The meeting room at Fair Oaks Park that the NCPA is going to use for their meeting was available from 10 am to noon, so I scheduled it for our meeting.

Let this be the official announcement of a meeting of the Packet Sysops of Northern California, Saturday, May 10, from 10 am to noon in the community meeting room in Fair Oaks Park, Sunnyvale. (I'll send out the specific directions to the park later on.)

Below is a list of items for discussion. The list includes ideas, plans and projects that have been proposed by various sysops in recent months. You might have something that you'd like to add to the list. Let's talk about what items are feasible at this time and start making some concrete plans for implementation.

Items for discussion:

- Forwarding problems in general - weak points in the network.

- South Bay and North Coast LAN RF connections to the backbone.
- Improve Garlic LAN connections to backbone.
- Upgrade of LAN forwarding on 223 MHz to 9600 baud. (This involves all of us! Are you interested?)
- Installation of a reliable 9600 baud north-south link between the Bay Area and the San Luis Obispo-Santa Maria area.
- Installation of a better link to the San Joaquin Valley.
- Upgrade transceivers used on the backbone nodes.

If you have any additional items that you'd like to discuss at this meeting, please send them along to me and I'll put out an agenda prior to the meeting.

Let's have a good turn out so that we can move forward and make some improvements during the coming months! I hope to see you on May 10!

73, Larry, WB9LOZ @ W6PW
E-mail: lkenney@slip.net
<http://www.slip.net/~lkenney/packet/packet.html>

[NOTE: See announcement for NCPA General Meeting on Page 5.]

PSNC Emergency meeting

Saturday, October 19, 1996

The PSNC met at Pacificon '96
The meeting was called to order by Mike WA6ZTY at 4 PM.

Present were the following:

Larry WB9LOZ (WBAY), Mike WA6ZTY (NBAY), Gary WB6YRU (SBAY), Mel W6BNG (EBAY), Eric WD6CMU (NBAY), Carol W9HGI (Garlic), Rick K6VE (SCAPS), Adam KE6IZU, Barry KE6LW (SACVAL), Mike KM6PX (SACVAL), and Bill K9AT.

Status of compass-point proposal

Rick K6VE says SCAPS will have a meeting in November and will vote on it then (expected to pass). It will be nice to have the whole state convert over and be able to make a state-wide announcement to that effect.

Forwarding problems with EBAY gateway

Eric WD6CMU reports that Brad said he won't forward MRYBAY traffic until/unless N6IYA publicly retracts a note threatening to stop forwarding NOCAL traffic. It was pointed out that N6IYA has never blocked NOCAL traffic and has stated in the mean time that he supports forwarding all traffic.

Mike WA6ZTY gave a summary of the whole problem to bring everyone up to speed...

John N6IYA was using 145.09 to connect to his node on Castle, saying it is the only way to maintain a reliable link. This link was being used for forwarding which the PSNC voted to not allow on two-meters. N6IYA's operation caused interference to BBS's user ports as far away as Santa Rosa. The stand-off continued for years with eventual sanctions and locking out of some gateways (on both sides). EBAY gateway started killing all traffic for MRYBAY. Gary WB6YRU worked out a compromise with N6IYA which included allocation of one two-meter frequency for forwarding. Since the plan involved allocations it was brought to the NCPA board. The NCPA asked PSNC for comment. Brad WA6AEO dug his feet in calling a PSNC meeting, so one was eventually called without his approval. The PSNC modified the plan slightly (no two-meter forwarding channel, but made a local exception on an experimental frequency) and sent it back to the NCPA which approved it. EBAY gateway (Brad) rejected the vote, continues killing MRYBAY traffic, and has

reportedly started forwarding on a BBS user channel saying the PSNC approved such and calling it a backup path.

Discussion followed about the current situation and forwarding in general.

Forwarding was observed from AC6NY to W6SF on 144.99. Mel W6BNG said he will look into it and report back. (It was said that AC6NY is partially controlled by Brad WA6AEO.)

Discussion followed about which BBS should be in which LAN (mostly for technical reasons).

The possibility that KD6JZZ, W6SF, and perhaps other BBS's might switch to SACVAL was discussed. KM6PX said any BBS who wishes to move to SACVAL is welcome. WA6YHJ is forwarding MRYBAY traffic directly to WBAY. KK6WD in Redding reportedly has no other link except to the EBAY gateway. Mike KM6PX says W7TA in Reno may switch to SACVAL.

No real solution was decided about what to do about the EBAY gateway. The best solution would be if the EBAY gateway became more cooperative. The EBAY gateway is in a good location and has a lot of connectivity. Mike WA6ZTY will talk to John N6IYA to see if a statement could be made that would satisfy Brad WA6AEO. It was suggested that a solution be found that allows all sides to back down while saving face.

Update on some LAN's

SACVAL: KM6PX-7 is a new node on 223.6 and seems to be helping with forwarding. Other backbone upgrades are in progress.

GARLIC: KO6LX is forwarding well now, thanks to help from Mike WA6ZTY.

WBAY: N6RFZ has shut down. KA6EYH-2 BBS has become KE6WVQ-2. KA6EYH-3 node has become KE6WVQ-3.

High-speed network

Jim Sivils KE6FSE in Modesto, Central Valley Digital Associates, is working on a high-speed network experiment which seems to be working well. Eric WD6CMU proposes a joint meeting to discuss high-speed backbone issues. Meeting possibly to be held in Livermore some time before the end of the year.

PSNC

Brad WA6AEO reportedly said the PSNC no longer exists as far as he is concerned. Obviously, he is no longer chairman. Mike WA6ZTY suggests we rotate the chairmanship instead of having one person continually in charge.

Adjourned 6:26 PM

Gary WB6YRU recording

EOF

NCPA Directors

Eric Williams, WD6CMU
WD6CMU @ WD6CMU
510-237-9909
wd6cmu@netcom.com

Bob Vallio, W6RGG
W6RGG@N6LDL
510-537-6704
wsixrgg@crl.com

Roy Wysling, KA6EYH
KA6EYH @ KA6EYH
415-355-2281
ka6eyh@muncney.com

Howard Krawetz, N6HM
N6HM @ N0ARY
408-739-7936
73112.717@compuserve.com

Gary Mitchell, WB6YRU
WB6YRU @ N0ARY
408-265-2336
wb6yru@arasmith.com

Larry Eker WA0YQM
WA0YQM @ N6QMY
510-489-3074

George Fisk K6TAM
K6TAM @ K16EH
k6tam@aol.com

Rich Gill KQ6EF
KQ6EF @ WA6YHJ
510-862-0425
richsnol@ix.netcom.com

Bill Bliss WB6LPG
WB6LPG @ KA6EYH
415-726-0662
wbliss@coastside.net

Carol Byers W9HGI
W9HGI @ W9HGI
crlbyers@garlic.com

NCPA Officers

President:
Gary Mitchell, WB6YRU

Vice-President:
Eric Williams, WD6CMU

Secretary:
Carol Byers W9HGI

Treasurer:
Roy Wysling KA6EYH

Temporary Newsletter Editor:
Gary Mitchell, WB6YRU

Newsletter Editor Elect:
Larry Eker WA0YQM

Frequency Coordinator:
Eric Williams, WD6CMU

Education Coordinator:
Larry Kenney, WB9LOZ

What is NCPA?

NCPA, the Northern California Packet Association, is an organization formed to foster the Digital Communications modes of Amateur Radio. So far, we have defined our goals as:

- **Education**
- **Coordination**

Education means making information available about various Digital modes, and this newsletter is but one part of that education process.

Coordination activities include frequency coordination (NCPA is recognized by NARCC as the official packet radio frequency coordinator) as well as coordinating people and their various uses of packet radio, be they DX Cluster, BBS, TCP/IP, keyboard-to-keyboard, NET/ROM, Traffic/NTS, Emergency uses of packet, or even experimenting with new frontiers of various digital modes.

We in NCPA believe that the next revolution in Ham Radio will come about in digital communications technology and in the beneficial coordination among all users of ham Digital Communications Technologies.

NCPA *Downlink*

Northern California Packet Association
PO Box 61716
Sunnyvale, CA 94088-1761